0612 I 49.2:L 89/4

FINAL REPORT

UNITED STATES FOREST SERVICE

Interagency Agreement Number 14-48-11333-98-HO59

Project Nunber 98-319h-03

IMPLEMENT RIPARIAN PROTECTION, PROJECT MONITORING AND MONITORING INFORMATION MANAGEMENT IN THE LOST RIVER/CLEAR LAKE WATERSHED

2002-015116/NF BEST COPY AVAILABLE COMPLETED

Abstract

In September of 1998, the United States Forest Service, Modoc National Forest, and the United States Fish and wildlife Service, Yreka Fish and Wildlife Office, entered into an interagency agreement to implement and administer watershed improvement and restoration within the Lost River/Clear Lake watershed of northern California. Fifteen thousand dollars of funding for this project was provided by a 319(h) grant awarded through the North Coast Water Quality Control Board of the State of California. Total cost of the project was estimated to be approximately $55,000.

The program agreement recognizes that livestock grazing is a major resource use impacting watershed conditions and that proper grazing practices are key to watershed maintenance, improvement and restoration. Therefore, a project designed to facilitate proper use of key streamside habitats by livestock was implemented through the agreement.

The project specifically provides for the construction of approximately 10 miles of riparian fencing to control timing, intensity and duration of cattle grazing along Lost River and Rock Creek within the Clear Lake grazing allotment of the Modoc National Forest. Cooperator to the project in addition to the agencies is the forests livestock grazing permittee.

The project also involves collection and management of monitoring data to evaluate to effectiveness and rate of watershed improvement and restoration.

Introduction

The program for watershed restoration represented by this project is one of several projects undertaken on the Doublehead Ranger District to complete treatment of the Lost River/Clear Lake watershed.

The Lost River/Clear Lake watershed is one of several headwater watersheds to the Klamath River system. Water from the Lost River/Clear Lake watershed originates on the Modoc Plateau and runoff drains into Clear Lake and Lost River.

Clear Lake and Lost River are home to a relatively large and healthy population of Lost River and shortnose suckers, both federally listed as protected under the Endangered Species Act. There is a small resident population of these fish in Lost River and possibly Rock Creek.

Water from Lost River originates in Clear Lake and flows from northeastern California into Oregon where it is used several times for agricultural irrigation, and then back to California into Tulelake. Excess water from Tulelake, a natural basin, is pumped through a series of tunnels and canals, and eventually enters the Klamath River near Klamath Falls, Oregon.

A program of implementing changes i livestock grazing on Modoc National Forest managed lands, emphasizing maintenance and enhancement of riparian areas was initiated approximately 16 years ago. Projects accomplished under the Interagency Agreement are an integral part of continuing and accelerating this program.

Description of Study Area

The study area is within the Modoc National Forest, Doublehead Ranger District. The project accomplished under this agreement is within the Modoc Plateau, Devil's Garden subsection and is in the extreme northern portion of Modoc County, California, along the California/Oregon boundary.

Climate is temperate and semi-arid to subhumid.

the geology of the area is characterized by basalt and a lesser amount of andesite and pyroclastic rocks. There are some alluvial and lacustrine deposits in small depressions.

The main landform is gently to moderately sloping plateau with few moderately steep to steep hills and scarps. The plateau lacks a well integrated drainage system. There are few stream channels and many small closed depressions.

The elevation range on the project area is approximately 4200 to 4800 feet.

Soils of the subregion are mostly well drained on the uplands and well to poorly drained on basin floors.

The predominant vegetation communities are big sagebrush and western juniper. Low sagebrush is common on shallow soils with curleaf mountain mahogany common on rock slopes and ridges.

Mean annual precipitation is about 10 to 20 inches. Much of the precipitation is snow. Mean annual temperature is about 45 degrees F to 50 degrees F. The mean freeze-free period is in the range from 75 to 125 days.

Runoff from uplands is rapid. Water drains down through joints in the basalt to the ground water reservoir, limiting overland flow of water and development of stream channels. Mush of the surface drainage is internal, to closed depressions and water ponds. There are few streams, with most being dry during summer. Streams that flow from the project area enter Clear Lake or Lost River which ultimately release water to the Lower Klamath Lake basin.

Lost River, which is one of two streams covered by this project, originates from Clear Lake. It is the conduit for irrigation water delivered from the lake to areas in Oregon and California. Because irrigation water is used throughout the growing season, flows in the river are high throughout the spring summer and early fall. Late fall and winter flows are generally at minimal levels.

Rock Creek, the other stream covered by this project, originates in Oregon. Water from this stream is also utilized for irrigation on private land above the project area. Irrigation demand during the irrigation season often reduces the flow to minimal levels. Flows in this stream are generally highest during the late winter/early spring period and again in the late fall after water is no longer needed for irrigation.

Both streams are the focal point of livestock and wildlife use during the late summer and early fall because of the relative lack of water on the surrounding upland areas. The result has been repeated heavy grazing since livestock began using the area in the mid 1800s. Riparian communities are generally in early to mid seral condition with few if any riparian shrubs present. Streambanks are generally stable, however, because of the large amount of rock that lines the stream corridor. The exception being in stretches of deep soil where banks have been eroded over time and down-cutting has occurred. Current

conditions are displayed in the attached Cross Section Composition and Greenline summary sheets. Photos of the photo points and transects accompany the summary sheets.

Methods and Materials

The objective of the project was to gain control over the timing, amount and duration of livestock grazing within key riparian areas in order to achieve improvement in herbaceous and woody plant cover and composition. This improvement in vegetative condition is expected to stabilize streambanks and improve quality of water being produced from Lost River and Rock Creek.

The method employed to do this was fencing of the riparian corridor into a manageable unit.

Standard range fence was constructed around the stream corridor. Fence design and specifications are included in the Appendix.

Baseline plant community information was gathered to enable documentation of changes to the vegetation as a result of the project. Stream Cross Section Composition and Greenline transects were installed to evaluate plant community seral stage and composition. Photo pints were established in conjunction with the transects.

Results and Discussion.

The Interagency Agreement for this watershed improvement project calls for accomplishment of five tasks. These are:

1. Secure landowner cooperation and written agreements, and archaeological and NEPA compliance to construct thirteen miles (13 mi.) of pasture fence on Lost River and Rock Creek.

2. Construct approximately 13 miles of 3-wire pasture fence on Lost River and Rock Creek.

3. Cooperate with Siskiyou County Office of Education and local schools to jointly monitor restoration projects in the Lost River/Clear Lake sub-basin.

4. Cooperate with the Regional Board staff and Kier Associates in the acquisition, organization and maintenance of data with which to evaluate water quality measures in the Clear Lake watershed.

5. Prepare and submit a report describing the measures accomplished through these tasks to improve and maintain water quality in the Clear Lake watershed.

Each of these tasks are discussed separately below.

1. The Interagency agreement between the Forest Service and U.S. Fish and Wildlife Service was finalized on September 5, 1998. Written agreements with the forest service livestock permittee

have been prepared and accepted by the permittee which call for construction of the fences. A total of approximately six miles of fence line have been evaluated for the presence of archaeological resources with the remaining millage scheduled to be done in the summer of 2000. The Clear Lake allotment Environmental Assessment included the proposed fence construction for NEPA compliance. Endangered Species Act compliance was achieved through a watershed wide consultation conducted in 1996. (Archaeological documentation, NEPA Decision Notice, Biological Assessment and Biological Opinion are attached.)

2. After surveying the proposed fence lines on the ground, it was found that a total of approximately 10 miles of fence were needed to enclose the riparian pastures rather than the 13 miles originally estimated in the agreement. To date 200 rolls of fencing wire, 1200 steel posts, 5,000 fence post fasteners and 1200 wire fence stays have been purchased with grant funds.

Agreements have been entered into with the grazing permittee to construct the total ten miles of pasture fence. To date approximately three miles of pasture fence have completed by the grazing permittee. Work was halted near the end of November because of adverse weather and ground conditions that precluded assess to the site. It is expected that approximately six miles of the pasture fence will be completed by May 15, 2000. Completion of the remaining four miles of pasture fence will be dependent on availability of forest service funds to purchase the remainder of the materials.

3. The local high school has been contacted concerning monitoring of the restoration projects. It was felt that the project was too far away and too hard to access for them to be able to participate in field data collection. Field data collected by the forest service will be made available to the high school classroom activities and record keeping.

4. Data and photographs collected by the forest service has been compiled and summarized. This information will be forwarded to Keir Associates for data organization and maintenance.

5. Completion and submission of this report will complete this task.

Summary and Conclusions

Construction of the three miles of fence completed in 1999 along with partial non-use of the grazing permit for resource protection will allow Lost River and Rock Creek to be rested from grazing during the 2000 grazing season. Completion of additional fence by the grazing permittee as scheduled will allow for a gradual restoration of full permitted grazing capacity as control of livestock is achieved on other parts of the allotment adjacent to Lost River and Rock Creek. The fencing will allow restocking of these areas while allowing rest of the riparian areas.

Monitoring and evaluation of the recovery of the riparian areas will continue as part of the forest services program of range administration.

Summary of Expenditures

The following is a listing of items on which expenditures were made under this Interagency Agreement:

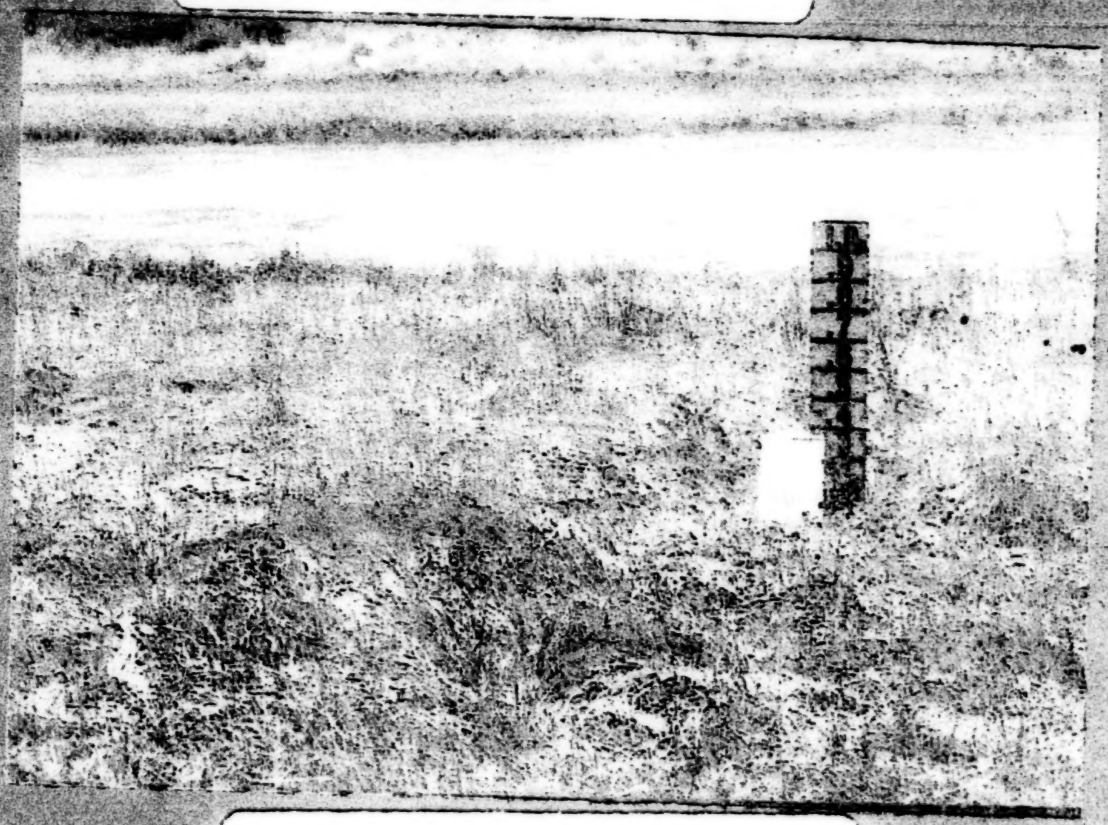
1. Purchase of 200 rolls of barbed and barbless fencing wire----------$5,950.00
2. Purchase of 1200 steel fence posts----------$4,293.60*
3. Purchase of 5000 fence post fasteners----------$ 136.00*
4. Purchase of 1200 twisted wire fence stays----------$ 396.24*
5. Overhead assessment----------$1,236.00

Total----------$12,011.84

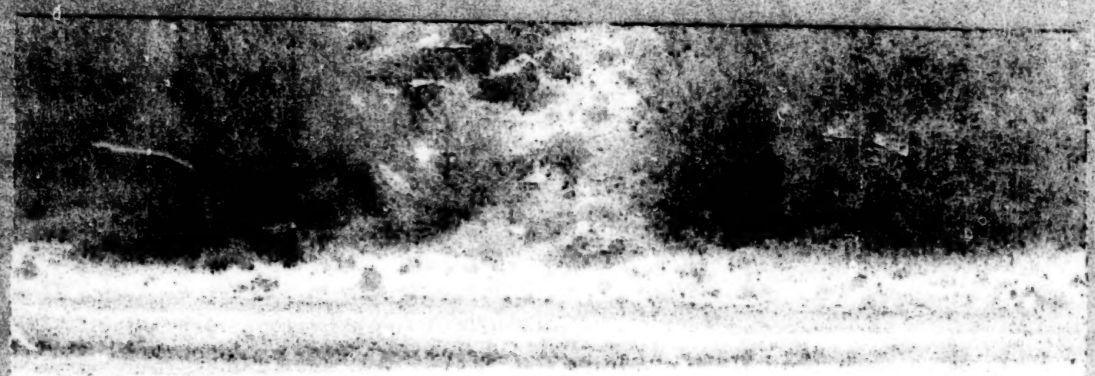
* Final invoices for these items have not been received, therefore, these costs are estimates.

Lost River

Photo Point



Close Up



General View

BEST COPY AVAILABLE

MONITORING PHOTOS

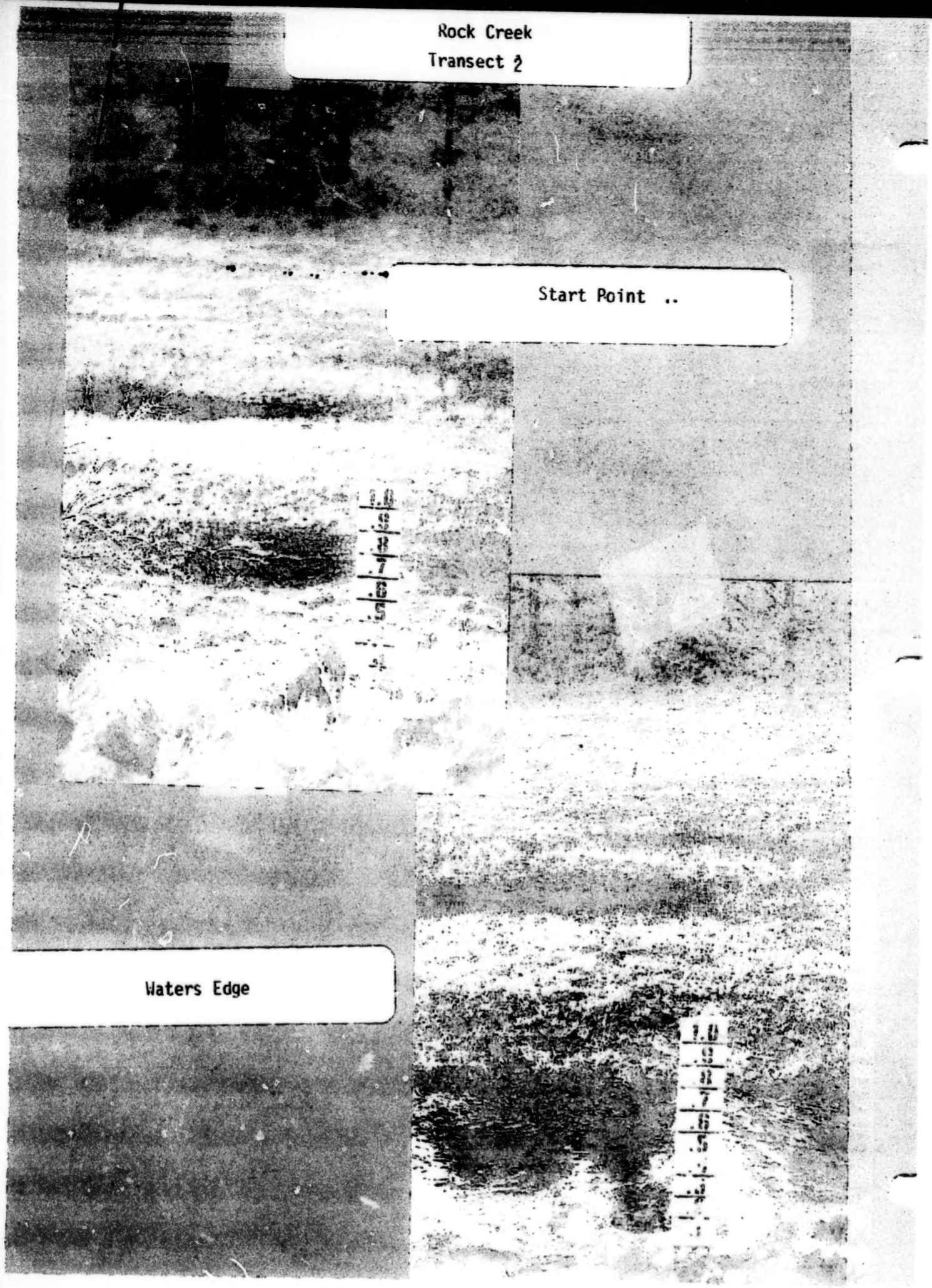
Rock Creek Transects 1-5

All Photos Taken November 18, 1999

Rock Creek
Transect 1

Start Point

BEST COPY AVAILABLE



BEST COPY AVAILABLE

Rock Creek
Transect 4

Start Point

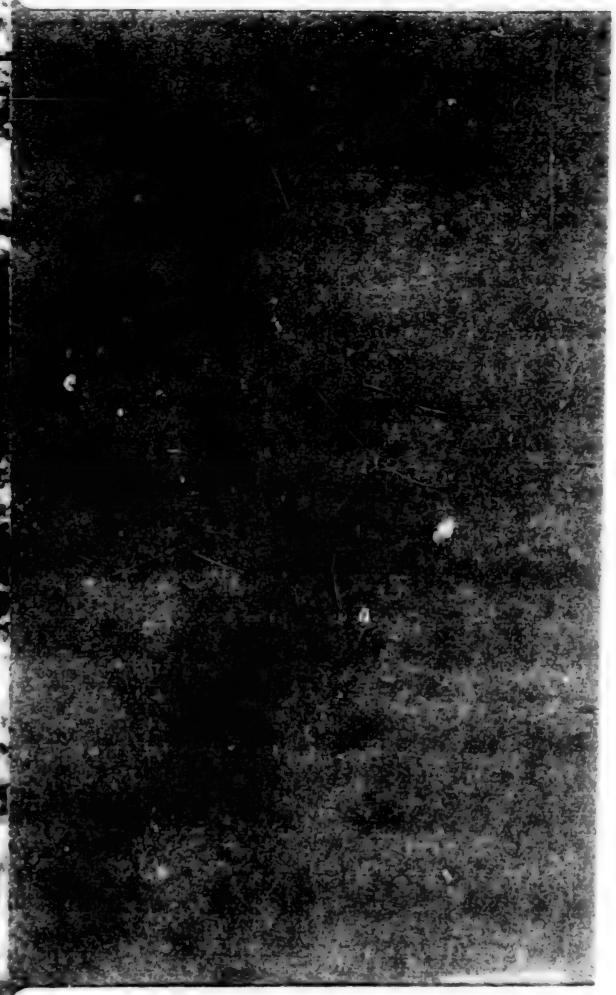
Waters Edge

BEST COPY AVAILABLE

Rock Creek

Transect 5

Start Point



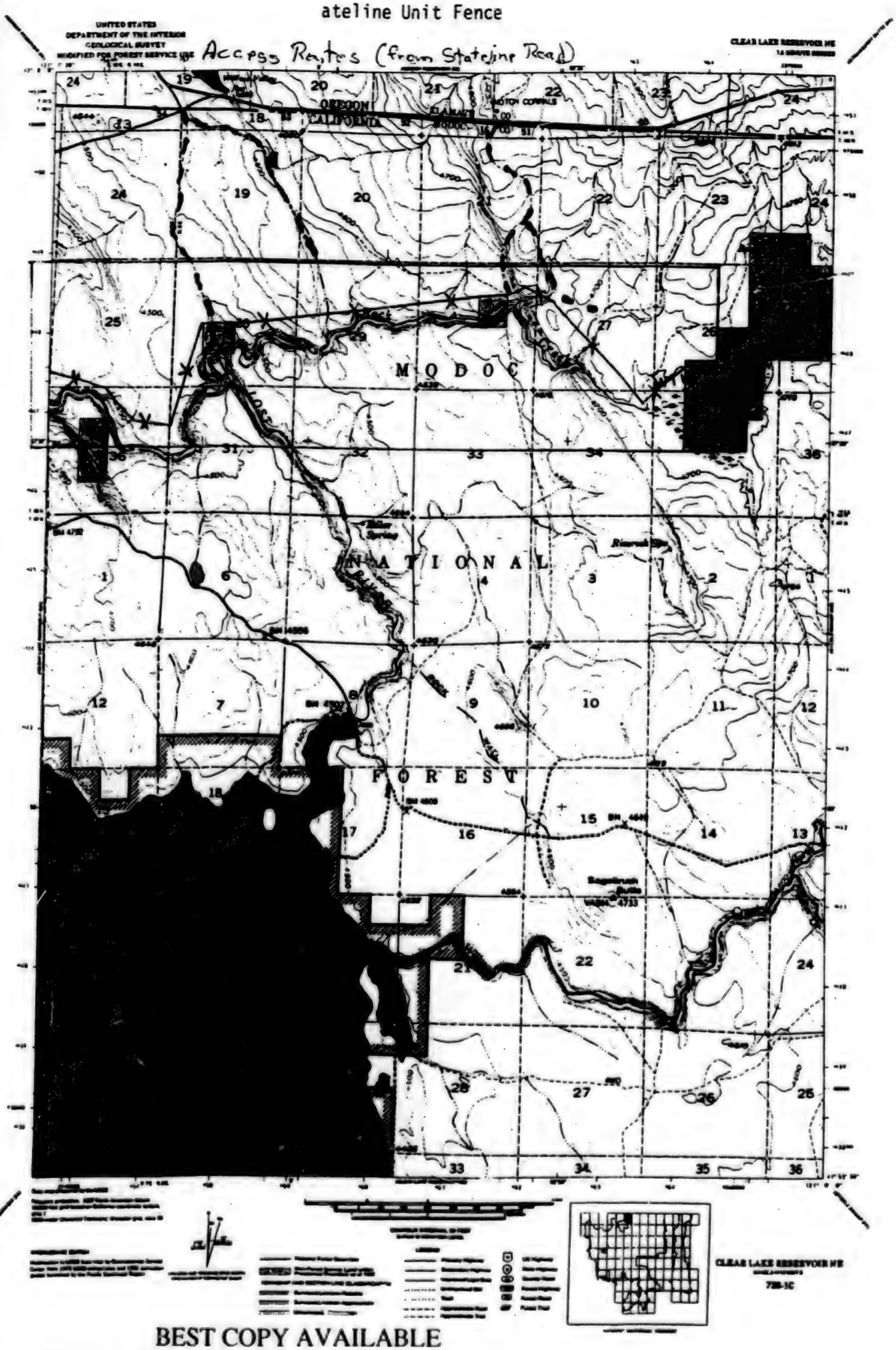
Waters Edge

BEST COPY AVAILABLE

Stateline Unit Fence

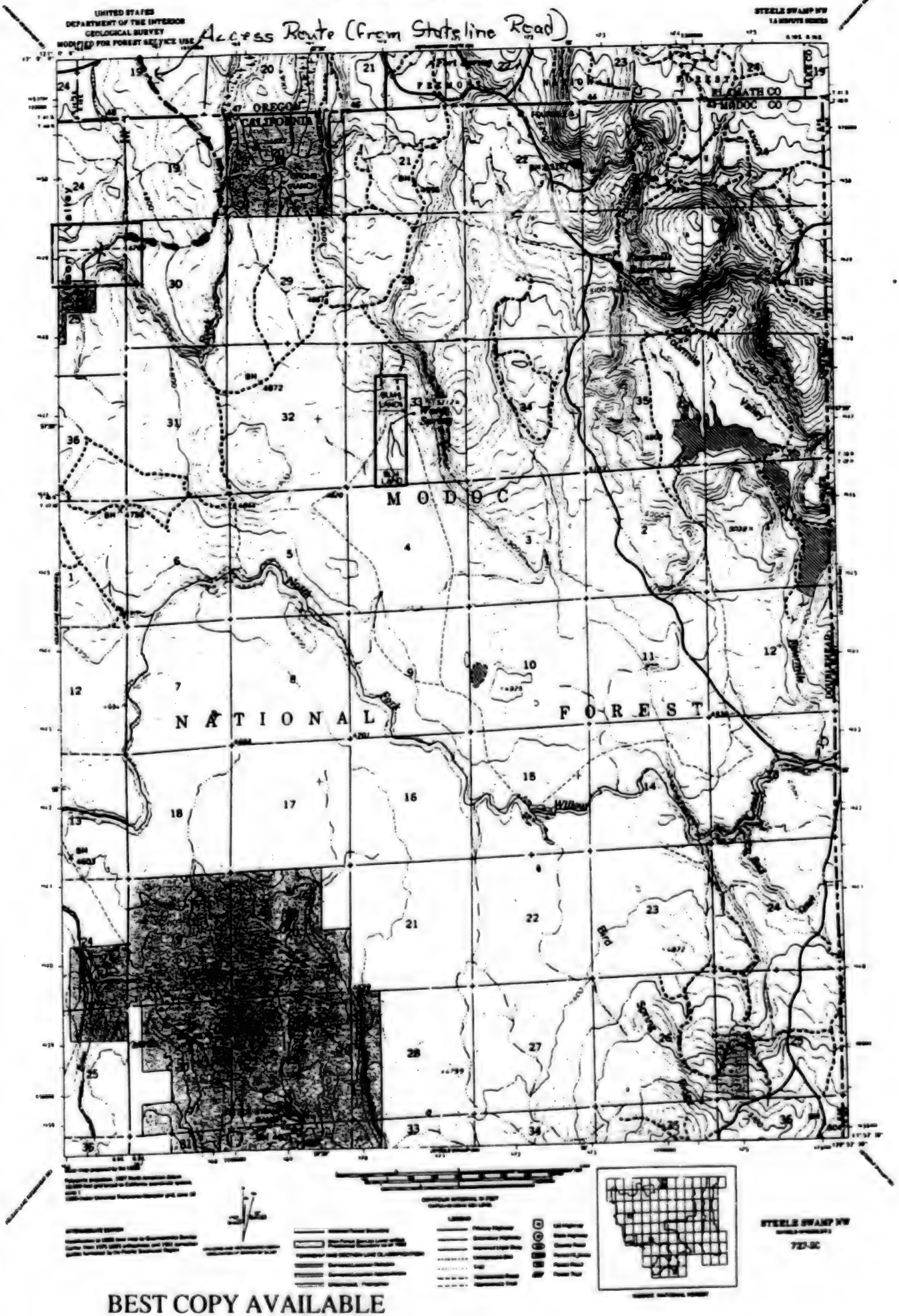
BEST COPY AVAILABLE

ateline Unit Fence



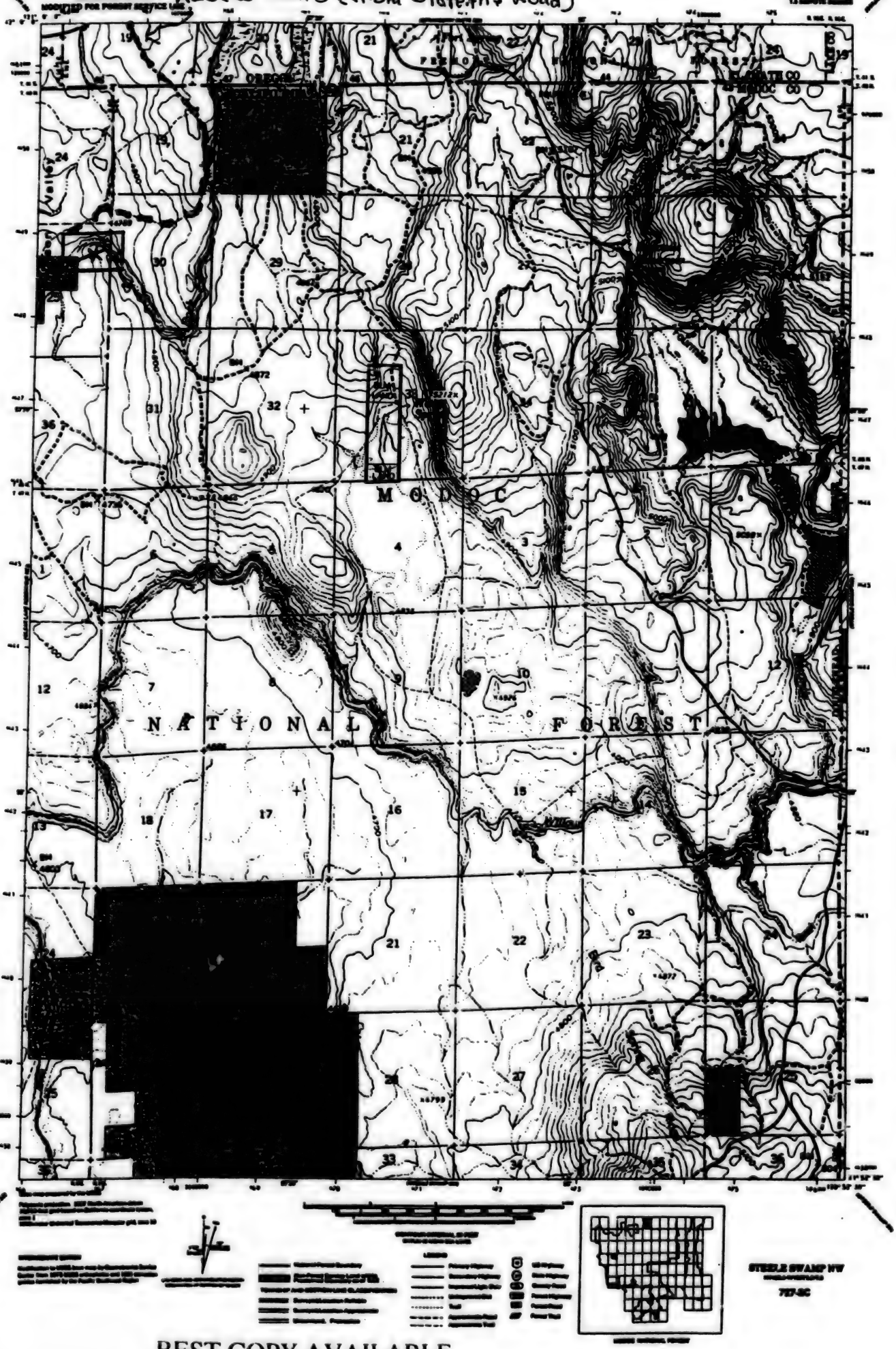
BEST COPY AVAILABLE

"ateline Unit Fence



BEST COPY AVAILABLE

Rock Creek Fence



BEST COPY AVAILABLE

United States Department of Agriculture | Forest Service | Doublehead Ranger District | P.O. Box 369 Tulelake, CA 96134

File Code: 2360 **Date:** January 26, 1998

Route To: Curt Fair
DGRD/DHRD Zone Archaeologist

Subject: 1998 Projects

To: District Ranger

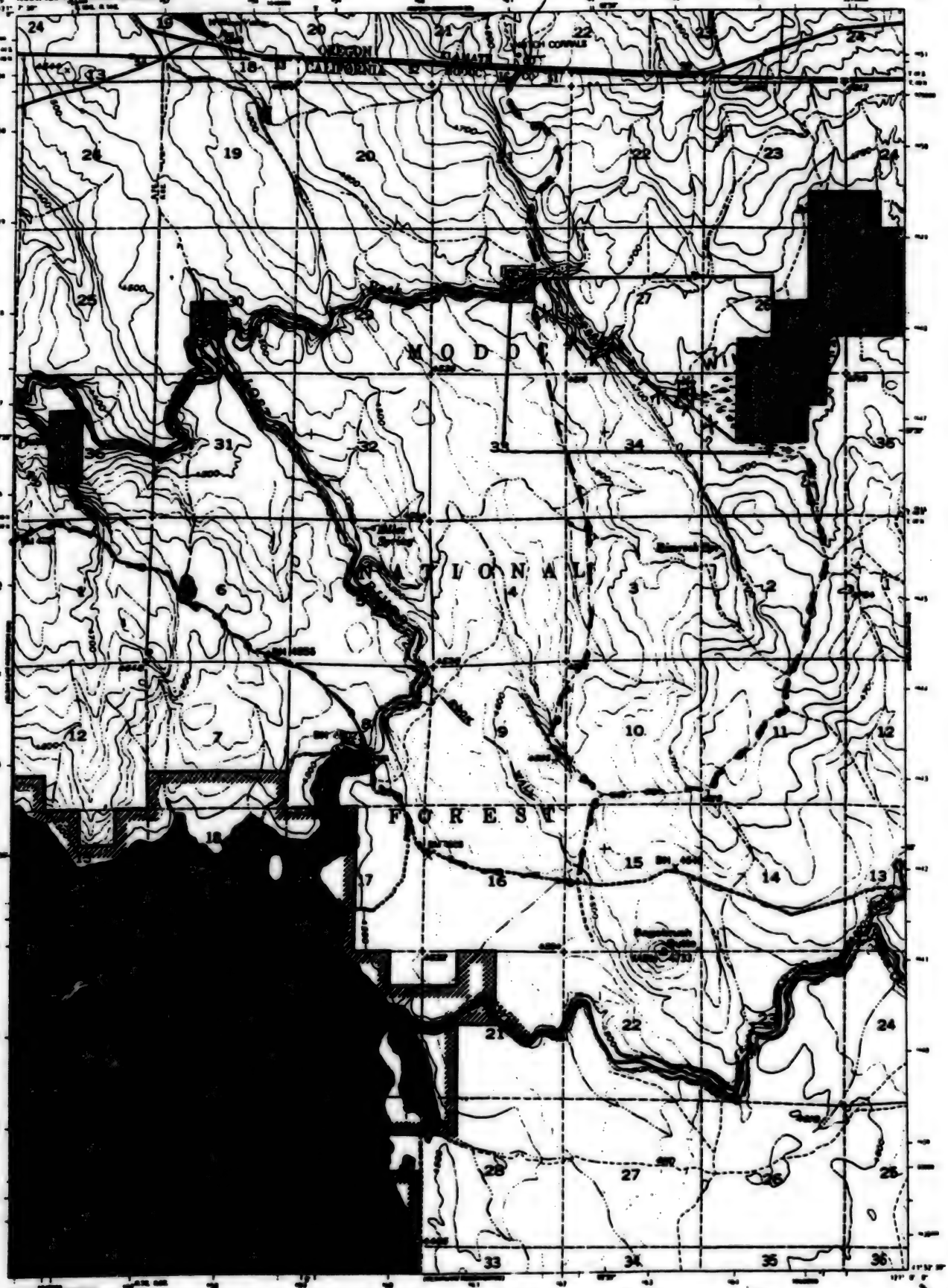
ProjectName: Rock Creek Fence
Range Department Priority: 1
Funding Code: 595657
Funding Amount: $ 1370.00
Project Sponsor: DHRD-Range
USGS Quad: Steele Swamp NW, 727-2C: Clear Lake Reservoir NE, 728-1C, Clear Lake Reservoir NW, 728-2C
Location: T. 48 N., R. 8 E., Sec. 25, 27, 28, 34, 35. (See Map)
Project Description: Construct a 4 wire, steel post fence within a 50' wide work area, approximately 1.5 miles long. Mostly hand labor with access along the route limited to rubber tired vehicles.
Project Duration: 10 days
Projected Project Implementation Date: August 5, 1998.
Project Flagged?: Not at this time. Expected to be flagged by May 5. Green/White stripped flagging.

BRAD REED
District Resource Officer

Enclosure

Rock Creek Fence

Access Route



Access Route

BEST COPY AVAILABLE

LOST RIVER AND CLEAR LAKE WATERSHEDS

SUMMARY OF PRE-PROJECT MONITORING

COMPOSITION CROSS SECTION, GREENLINE AND WOODY SPECIES REGENERATION TRANSECTS

MONITORING LOCATION

LOST RIVER (Township 47 North, Range 8 East, NWSE Section 8, MDM)

Greenline

Plant Communities Present

Community Type	Ecological Status	Stability Rating
Nebraska Sedge	Late	9
Baltic Rush	Early	9
Beaked Sedge	Early	8
Mixed Forb	Early	5
Nebraska Sedge/ Beaked Sedge	Early	8
Nebraska Sedge/ Redtop	Early	4

Ecological Status Rating Summary

Community type	% Composition	Ecological Rating Early	Late
Nebraska Sedge	41		41
Baltic Rush	44.9	44.9	
Beaked Sedge	3	3	
Mixed Forb	1.2	1.2	
Nebraska Sedge/Beaked Sedge	4.5	4.5	
Nebraska Sedge/Red Top	.6	.6	
Rock	3.9		3.9
Total	100%	54.2	44.9

Percent Late Seral Types 44.9

= 47.3% or Mid Seral Stage

Potential (Based on Rosgen C2) 95

Stability Rating Summary

Community Type	% Composition	Stability Class	Index
Nebraska Sedge	41	9	3.69
Baltic Rush	44.9	9	4.04
Beaked Sedge	3	8	.24
Mixed Forb	1.2	5	.06
Nebraska Sedge/Beaked Sedge	4.5	8	.36
Nebraska Sedge/Red Top	.6	4	.024
Rock	3.9	10	.39
Total	100%		8.80 or Good Watershed Stability

No woody regeneration at this location. No Composition Cross Section transects at this location.

ROCK CREEK (Township 48 North, Range 8 East, South ½ Section 30 MDM)

Greenline

Plant Communities Present

Community Type	Ecological Status	Stability Rating
Nebraska Sedge	Late	9
Beaked Sedge	Early	8
Baltic Rush	Early	9
Mixed Grass	Early	1
Rock	Late	10

Ecological Status Rating

Community Type	% Composition	Ecological Status Early	Late
Nebraska Sedge	31.3		31.3
Beaked Sedge	38.5	38.5	
Baltic Rush	11.8	11.8	
Mixed Grass	9.2	9.2	
Rock	5.9		5.9
Silt/Clay	3.3	3.3	
Total	100	62.8	37.2

Percent Late Seral Types 37.2

Potential (Based on Rosge 95

= 39.4% or Early Seral Stage

Stability Rating Summary

Community Type	% Composition	Stability Class	Index	
Nebraska Sedge	31.3	9	2.82	
Beaked Sedge	38.5	8	3.08	
Baltic Sedge	11.8	9	1.06	
Mixed Grasses	9.3	1	.09	
Rock	5.9	10	.59	
Silt/Clay	3.3	1	.03	
Total	100%		7.67	or Good Watershed Stability

Cross Section Composition

Community Type	Transect T1(feet)	T2(feet)	T3(feet)	T4(feet)	T5(feet)	Total	% Composition (Total Riparian)
Nebraska Sedge	22.5	0	10	12.5	0	45	14.2
Beaked Sedge	0	2.5	0	25	7.5	35	11.0
Baltic Rush	0	5.0	0	5.0	2.5	12.5	3.9
Mixed Grass	35.0	22.5	50	50	67.5	225	70.9

14.2 Percent Undisturbed Types (Nebraska Sedge) = **Very Early Seral Stage**

Woody Species Regeneration

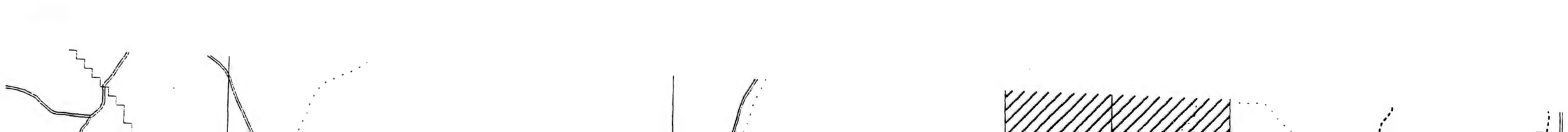
Species	Seedling/Sprout	Young/Sapling	Mature	Decadent	Dead
Lemmon Willow	0	1	7	0	0
Geyer Willow	0	74	5	0	0
Coyote Willow	0	1	4	0	0
Rose	0	1	0	0	0
Total	0	77	16	0	0

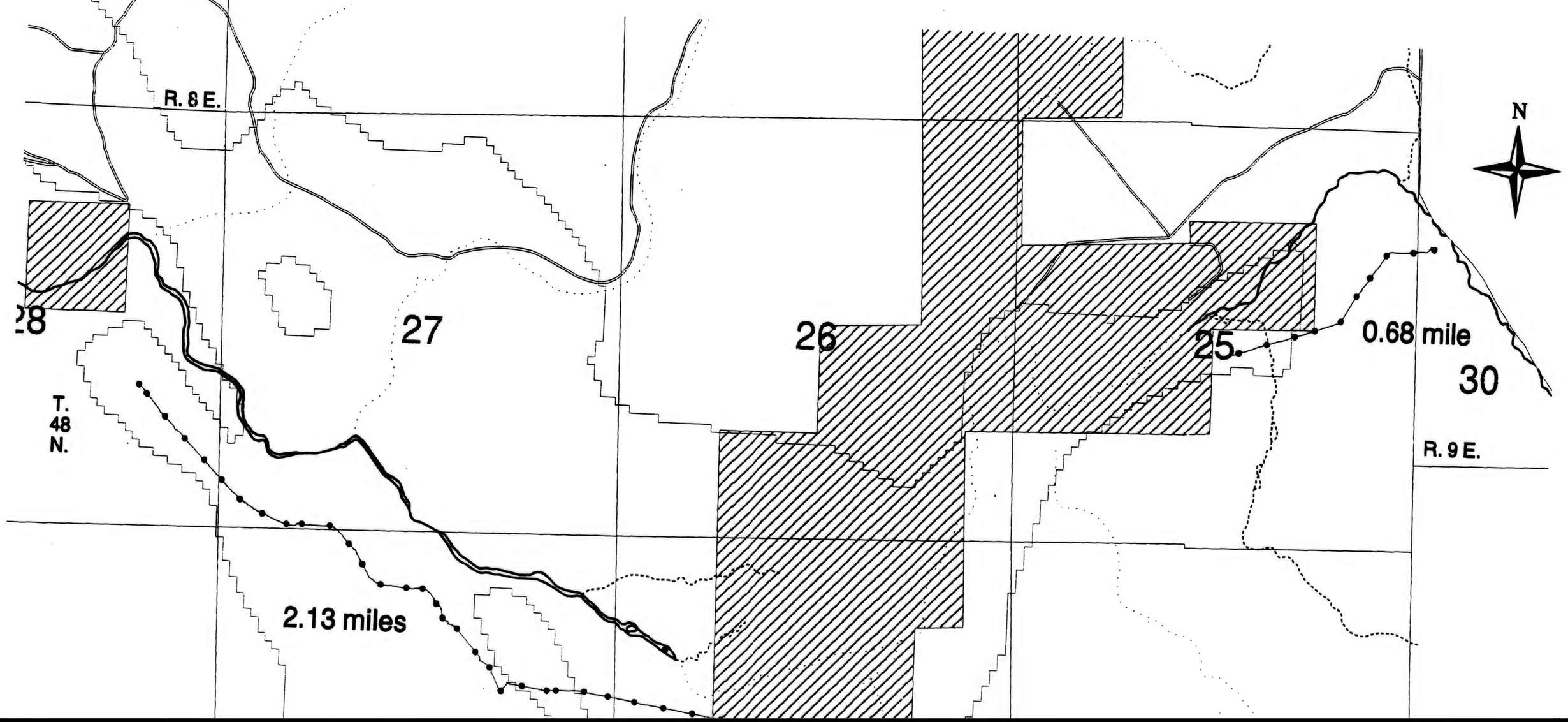
83% young and 17% mature plants

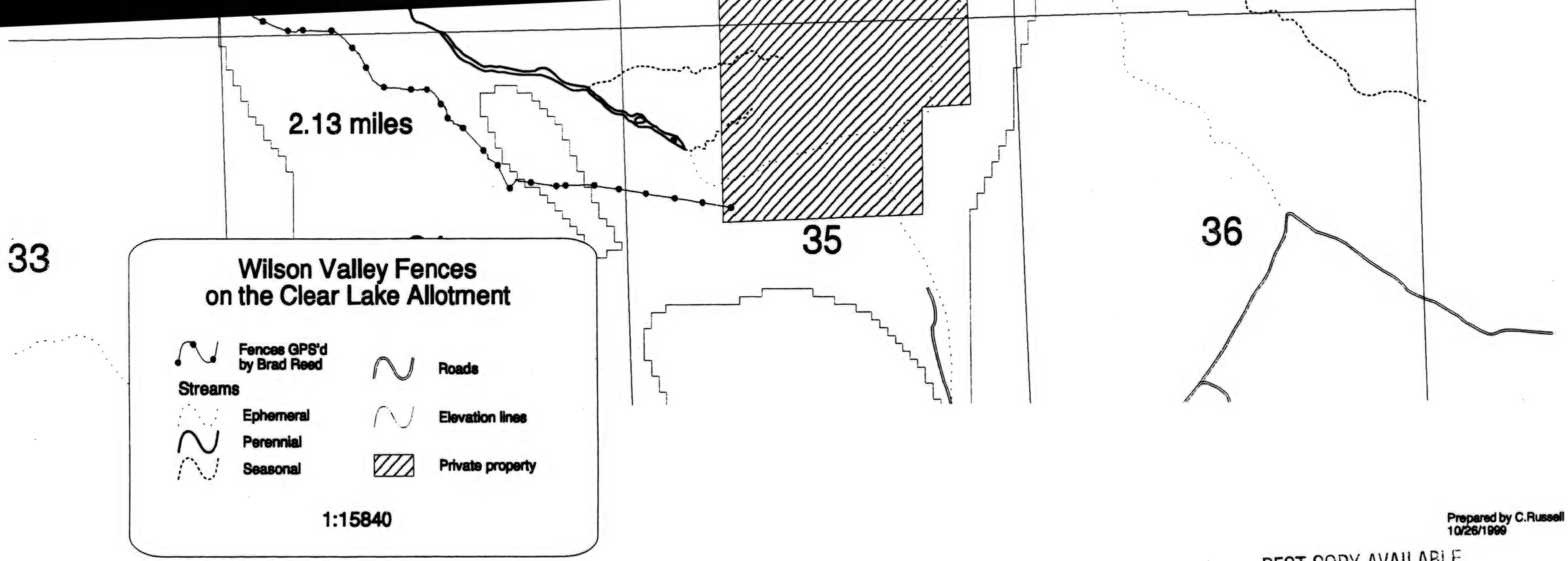
END

DATE FILMED

09/13/02

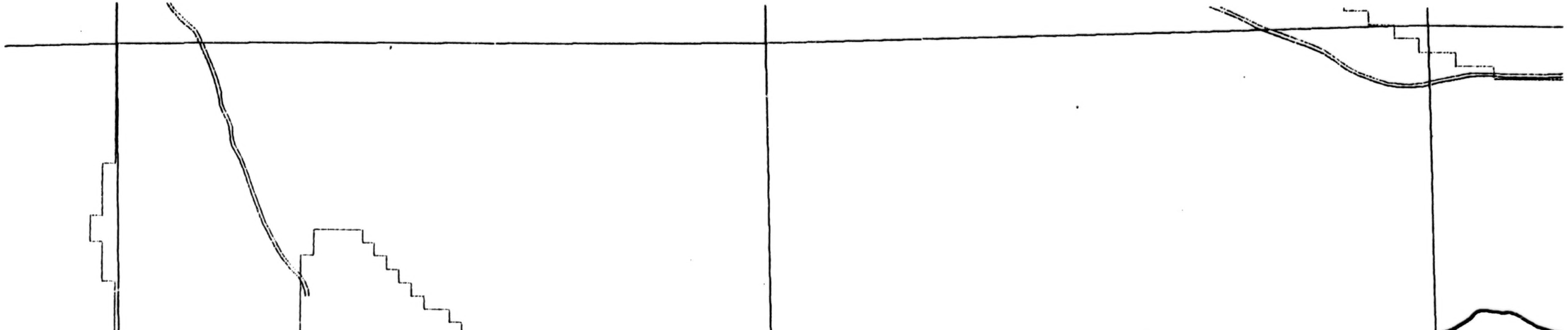


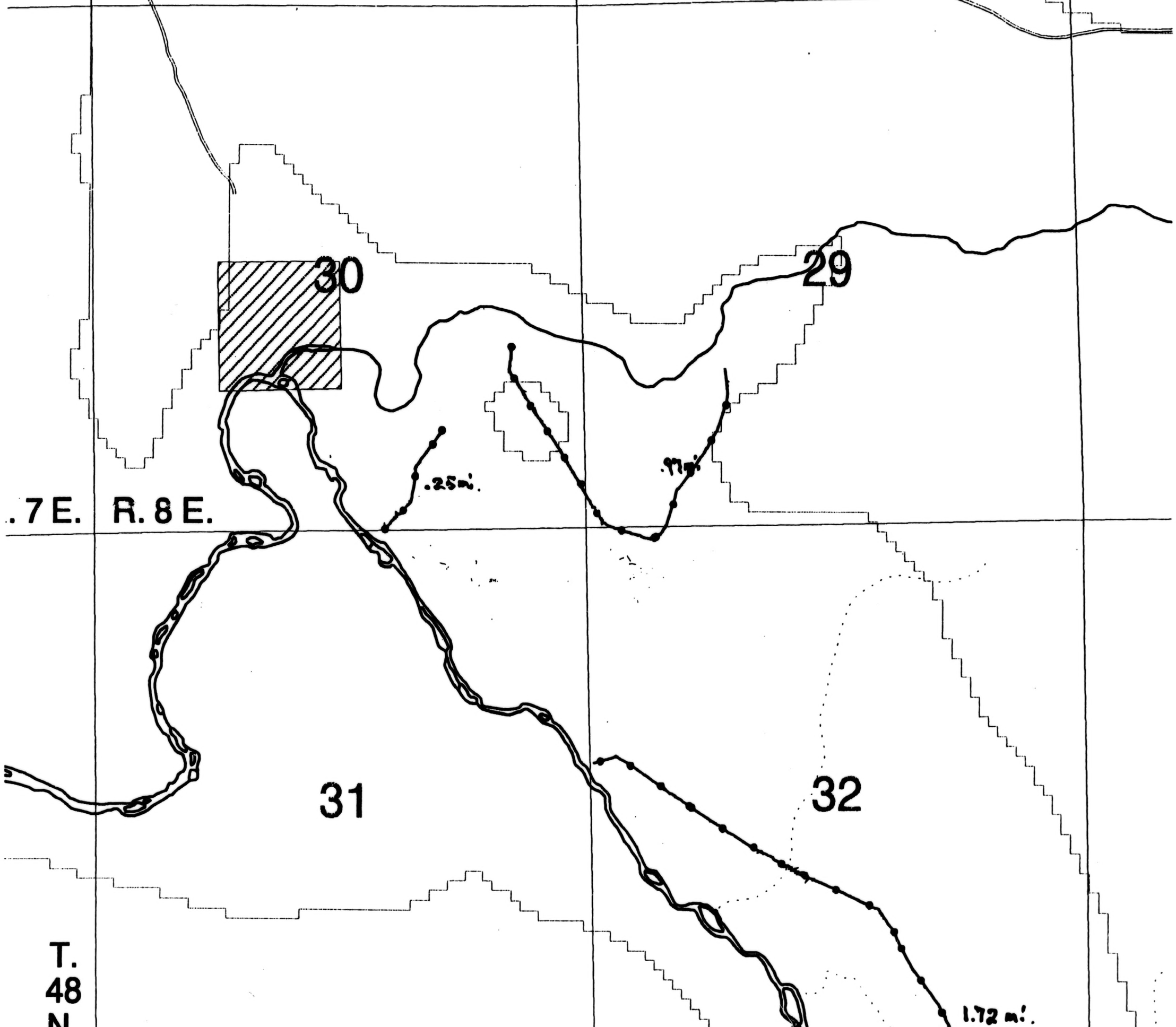

R. 8 E.
N
28
27
26
25
0.68 mile
30
T.
48
N.
R. 9 E.
2.13 miles

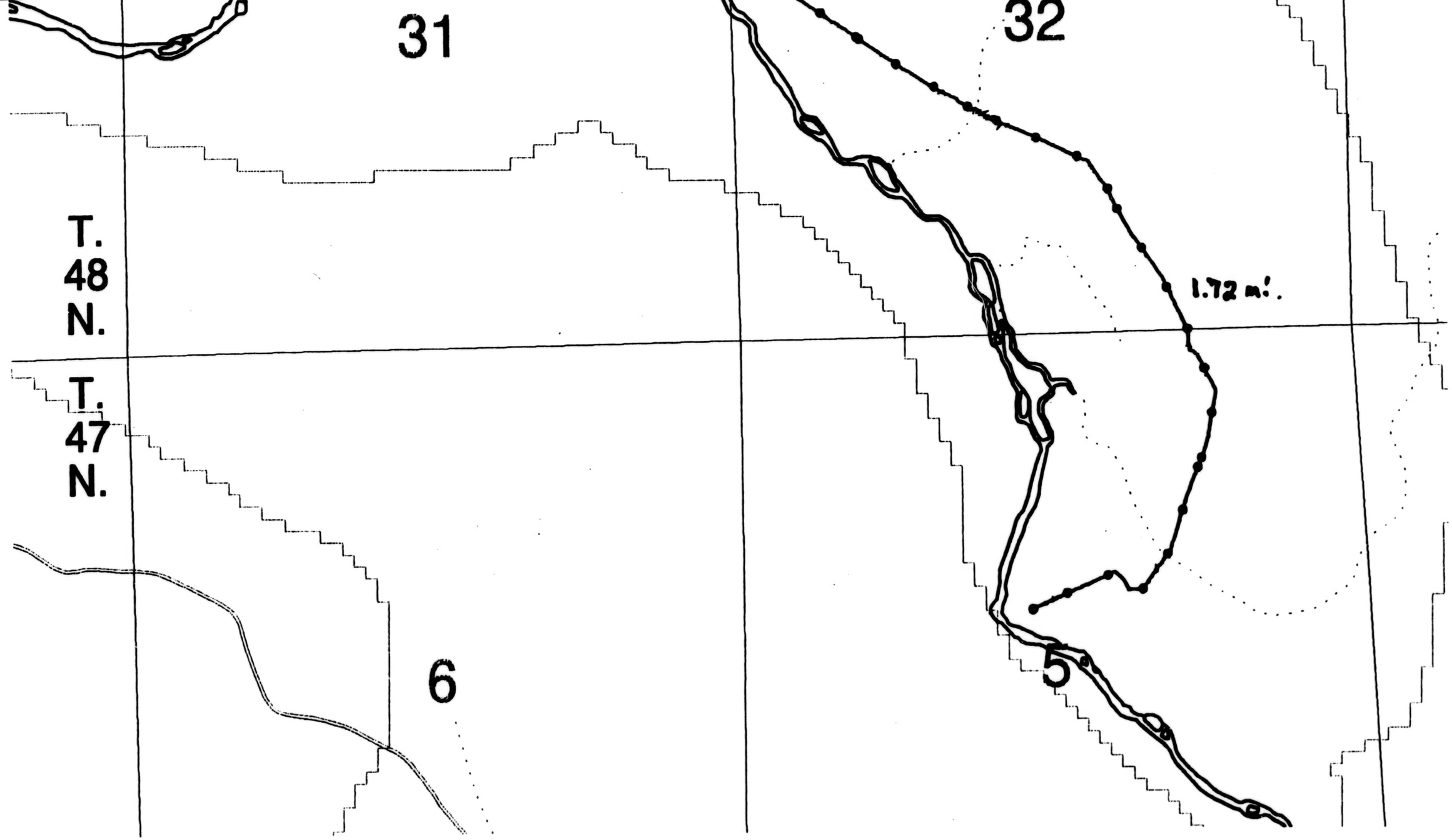


Prepared by C.Russell
10/26/1999

BEST COPY AVAILABLE




30
29
.25mi.
.7 E.
R. 8 E.
31
32
T.
48
N.
1.72 mi.



Lost River Fences on the Clear Lake Allotment

Fences GPS'd by Brad Reed

Roads

Streams

Ephemeral

Elevation lines

N

Lost River Fences on the Clear Lake Allotment

Fences GPS'd by Brad Reed

Streams

Ephemeral

Perennial

Seasonal

Roads

Elevation lines

Private property

1:15840

N

Prepared by C.Russell
10/19/1999

BEST COPY AVAILABLE